Laboratory Data Consultants, Inc.
Data Validation Report

Project/Site Name: Ballfields Parcels at DoDHF Novato, CA

Collection Date: April 6, 2005

LDC Report Date: June 16, 2005

Matrix: Water

Parameters: Gasoline Range Organics

Validation Level: NFESC Level III & IV

Laboratory: Columbia Analytical Services, Inc.

Sample Delivery Group (SDG): K2502571

Sample Identification

TO63-R3-GW01-ER
TO63-R3-GW01
TO63-R3-GW01-Dup
TO63-R4-GW01**
TO63-R5-GW01
TO63-R3-GW01-FB
TO63-R2-GW01
TO63-R1-GW01
TO63-R3-GW01MS
TO63-R3-GW01MSD

**Indicates sample underwent NFESC Level IV review

Introduction

This data review covers 10 water samples listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per EPA SW 846 Method 8015 for Gasoline Range Organics.

The review follows the Final Sampling and Analysis Plan for Preliminary Assessment/Site Investigation of Ballfields Parcels at DoDHF Novato, California, (March 23, 2005) and a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines for Organic Data Review (October 1999) as there are no current guidelines for the methods stated above.

A qualification summary table is provided at the end of this report if data has been qualified. Flags are classified a P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical advisory nature.

Blanks are summarized in Section III.

Field duplicates are summarized in Section XIII.

Samples indicated by a double asterisk on the front cover underwent NFESC Level IV review. NFESC Level III review was performed on all of the other samples. Raw data were not evaluated for the samples reviewed by NFESC Level III criteria since this review is based on QC data.

The following are definitions of the data qualifiers:

U Indicates the compound or analyte was analyzed for but not detected at or above the stated limit.

J Indicates an estimated value.

R Quality control indicates the data is not usable.

N Presumptive evidence of presence of the constituent.

UJ Indicates the compound or analyte was analyzed for but not detected. The sample detection limit is an estimated value.

A Indicates the finding is based upon technical validation criteria.

P Indicates the finding is related to a protocol/contractual deviation.

None Indicates the data was not significantly impacted by the finding, therefore qualification was not required.

I. Technical Holding Times

All technical holding time requirements were met.

The chain-of-custodies were reviewed for documentation of cooler temperatures. All cooler temperatures met validation criteria.

II. Calibration

a. Initial Calibration

Initial calibration of compounds was performed as required by the method.

The percent relative standard deviations (%RSD) of calibration factors for compounds were less than or equal to 20.0% .

b. Calibration Verification

Calibration verification was performed at required frequencies. The percent differences (%D) of amounts in continuing standard mixtures were within the 15.0% QC limits.

The percent difference (%D) of the second source calibration standard were less than or equal to 15.0% for all compounds.

III. Blanks

Method blanks were reviewed for each matrix as applicable. No gasoline range organic contaminants were found in the method blanks.

IV. Accuracy and Precision Data

a. Surrogate Recovery

Surrogates were added to all samples and blanks as required by the method. All surrogate recoveries (%R) were within QC limits.

b. Matrix Spike/Matrix Spike Duplicates

Matrix spike (MS) and matrix spike duplicate (MSD) samples were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits.

c. Laboratory Control Samples

Laboratory control samples were reviewed for each matrix as applicable. Percent recoveries (%R) were within QC limits.

V. Target Compound Identification

All target compound identifications were within validation criteria for samples on which a NFESC Level IV review was performed. Raw data were not evaluated for the samples reviewed by Level III criteria.

VI. Compound Quantitation and CRQLs

All compound quantitation and CRQLs were within validation criteria for samples on which a NFESC Level IV review was performed. Raw data were not evaluated for the samples reviewed by Level III criteria.

VII. System Performance

The system performance was within validation criteria for samples on which a NFESC Level IV review was performed. Raw data were not evaluated for the samples reviewed by Level III criteria.

VIII. Overall Assessment of Data

Data flags are summarized at the end of this report if data has been qualified.

IX. Field Duplicates

Samples TO63-R3-GW01 and TO63-R3-GW01-Dup were identified as field duplicates. No gasoline range organics were detected in any of the samples with the following exceptions:

Compound	Concentration (ug/L)		RPD
	TO63-R3-GW01	TO63-R3-GW01-Dup	
Gasoline range organics	14	33	81

X. Field Blanks

Sample TO63-R3-GW01-ER was identified as an equipment rinsate. No gasoline range organic contaminants were found in this blank with the following exceptions:

Equipment Rinsate ID	Compound	Concentration (ug/L)
TO63-R3-GW01-ER	Gasoline range organics	13

Sample TO63-R3-GW01-FB was identified as a field blank. No gasoline range organic contaminants were found in this blank.

Ballfields Parcels at DoDHF Novato, CA
Gasoline Range Organics - Data Qualification Summary - SDG K2502571

No Sample Data Qualified in this SDG

Ballfields Parcels at DoDHF Novato, CA
Gasoline Range Organics - Laboratory Blank Data Qualification Summary - SDG K2502571

No Sample Data Qualified in this SDG

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Results

Client:	Battelle Memorial Institute	**Service Request:**	K2502571
Project:	Novato Ballfields/G486063	**Date Collected:**	04/07/2005
Sample Matrix:	Water	**Date Received:**	04/08/2005

Gasoline Range Organics

Sample Name:	TO63-R3-GW01-ER	**Units:**	ug/L
Lab Code:	K2502571-001	**Basis:**	NA
Extraction Method:	EPA 5030B	**Level:**	Low
Analysis Method:	8015B		

Analyte Name	Result	Q	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Note
Gasoline Range Organics (GRO)	**13**	J	50	13	1	04/12/05	04/12/05	KWG0505834	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Note
1,4-Difluorobenzene	95	75-120	04/12/05	Acceptable

4/19/05

Comments:

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Results

Client:	Battelle Memorial Institute	**Service Request:**	K2502571
Project:	Novato Ballfields/G486063	**Date Collected:**	04/07/2005
Sample Matrix:	Water	**Date Received:**	04/08/2005

Gasoline Range Organics

Sample Name:	TO63-R3-GW01	**Units:**	ug/L
Lab Code:	K2502571-002	**Basis:**	NA
Extraction Method:	EPA 5030B	**Level:**	Low
Analysis Method:	8015B		

Analyte Name	Result	Q	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Note
Gasoline Range Organics (GRO)	**14**	J	50	13	1	04/12/05	04/12/05	KWG0505834	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Note
1,4-Difluorobenzene	97	75-120	04/12/05	Acceptable

6/19/05

Comments:

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Results

Client:	Battelle Memorial Institute	**Service Request:**	K2502571
Project:	Novato Ballfields/G486063	**Date Collected:**	04/07/2005
Sample Matrix:	Water	**Date Received:**	04/08/2005

Gasoline Range Organics

Sample Name:	TO63-R3-GW01-DUP	**Units:**	ug/L
Lab Code:	K2502571-003	**Basis:**	NA
Extraction Method:	EPA 5030B	**Level:**	Low
Analysis Method:	8015B		

Analyte Name	Result	Q	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Note
Gasoline Range Organics (GRO)	**33**	J	50	13	1	04/12/05	04/12/05	KWG0505834	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Note
1,4-Difluorobenzene	95	75-120	04/12/05	Acceptable

4/19/05

Comments:

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Results

Client:	Battelle Memorial Institute	**Service Request:**	K2502571
Project:	Novato Ballfields/G486063	**Date Collected:**	04/07/2005
Sample Matrix:	Water	**Date Received:**	04/08/2005

Gasoline Range Organics

Sample Name:	TO63-R4-GW01	**Units:**	ug/L
Lab Code:	K2502571-004	**Basis:**	NA
Extraction Method:	EPA 5030B	**Level:**	Low
Analysis Method:	8015B		

Analyte Name	Result	Q	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Note
Gasoline Range Organics (GRO)	**24**	J	50	13	1	04/12/05	04/12/05	KWG0505834	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Note
1,4-Difluorobenzene	93	75-120	04/12/05	Acceptable

6/19/05

Comments:

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Results

Client:	Battelle Memorial Institute	**Service Request:**	K2502571
Project:	Novato Ballfields/G486063	**Date Collected:**	04/07/2005
Sample Matrix:	Water	**Date Received:**	04/08/2005

Gasoline Range Organics

Sample Name:	TO63-R5-GW01	**Units:**	ug/L
Lab Code:	K2502571-005	**Basis:**	NA
Extraction Method:	EPA 5030B	**Level:**	Low
Analysis Method:	8015B		

Analyte Name	Result	Q	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Note
Gasoline Range Organics (GRO)	**18**	J	50	13	1	04/12/05	04/12/05	KWG0505834	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Note
1,4-Difluorobenzene	94	75-120	04/12/05	Acceptable

4/6/19/05

Comments:

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Results

Client: Battelle Memorial Institute
Project: Novato Ballfields/G486063
Sample Matrix: Water

Service Request: K2502571
Date Collected: 04/07/2005
Date Received: 04/08/2005

Gasoline Range Organics

Sample Name: TO63-R3-GW01-FB
Lab Code: K2502571-006

Extraction Method: EPA 5030B
Analysis Method: 8015B

Units: ug/L
Basis: NA
Level: Low

Analyte Name	Result	Q	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Note
Gasoline Range Organics (GRO)	ND	U	50	13	1	04/12/05	04/12/05	KWG0505834	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Note
1,4-Difluorobenzene	96	75-120	04/12/05	Acceptable

4/19/05

Comments:

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Results

Client:	Battelle Memorial Institute	**Service Request:**	K2502571
Project:	Novato Ballfields/G486063	**Date Collected:**	04/07/2005
Sample Matrix:	Water	**Date Received:**	04/08/2005

Gasoline Range Organics

Sample Name:	TO63-R2-GW01	**Units:**	ug/L
Lab Code:	K2502571-007	**Basis:**	NA
Extraction Method:	EPA 5030B	**Level:**	Low
Analysis Method:	8015B		

Analyte Name	Result	Q	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Note
Gasoline Range Organics (GRO)	**20**	J	50	13	1	04/12/05	04/12/05	KWG0505834	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Note
1,4-Difluorobenzene	93	75-120	04/12/05	Acceptable

4/19/05

Comments:

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Results

Client:	Battelle Memorial Institute	**Service Request:**	K2502571
Project:	Novato Ballfields/G486063	**Date Collected:**	04/07/2005
Sample Matrix:	Water	**Date Received:**	04/08/2005

Gasoline Range Organics

Sample Name:	TO63-R1-GW01	**Units:**	ug/L
Lab Code:	K2502571-008	**Basis:**	NA
Extraction Method:	EPA 5030B	**Level:**	Low
Analysis Method:	8015B		

Analyte Name	Result	Q	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Note
Gasoline Range Organics (GRO)	17	J	50	13	1	04/12/05	04/12/05	KWG0505834	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Note
1,4-Difluorobenzene	92	75-120	04/12/05	Acceptable

4/19/05

Comments:

LDC #: 13575D7
SDG #: K2502571
Laboratory: Columbia Analytical Services

VALIDATION COMPLETENESS WORKSHEET
Level III/IV

Date: 6/13/05
Page: 1 of 1
Reviewer: [illegible]
2nd Reviewer: [illegible]

METHOD: GC Gasoline Range Organics (EPA SW 846 Method 8015)

The samples listed below were reviewed for each of the following validation areas. Validation findings are noted in attached validation findings worksheets.

	Validation Area		Comments
I.	Technical holding times	A	Sampling dates: 4/6/05
IIa.	Initial calibration	A	
IIb.	Calibration verification	A	70D & ICV
III.	Blanks	A	
IVa.	Surrogate recovery	A	
IVb.	Matrix spike/Matrix spike duplicates	A	
IVc.	Laboratory control samples	A	LCS
V.	Target compound identification	A	Not reviewed for Level III validation.
VI.	Compound Quantitation and CRQLs	A	Not reviewed for Level III validation.
VII.	System Performance	A	Not reviewed for Level III validation.
VIII.	Overall assessment of data	A	
IX.	Field duplicates	SW	D = 2+3
X.	Field blanks	SW	ER=1. FB=6 *

Note: A = Acceptable
N = Not provided/applicable
SW = See worksheet
* ND = No compounds detected
R = Rinsate
FB = Field blank
D = Duplicate
TB = Trip blank
EB = Equipment blank

Validated Samples: ** Indicates sample underwent Level IV validation

MW H2O

1	TO63-R3-GW01-ER	11	KWG0505834-5	21		31	
2	TO63-R3-GW01	12		22		32	
3	TO63-R3-GW01-Dup	13		23		33	
4	TO63-R4-GW01**	14		24		34	
5	TO63-R5-GW01	15		25		35	
6	TO63-R3-GW01-FB	16		26		36	
7	TO63-R2-GW01	17		27		37	
8	TO63-R1-GW01	18		28		38	
9	TO63-R3-GW01MS	19		29		39	
10	TO63-R3-GW01MSD	20		30		40	

Notes: _____

LDC #: 135750 7
SDG #: E25025 71

VALIDATION FINDINGS CHECKLIST

Reviewer: a
2nd Reviewer: A

Method: ✓ GC _____ HPLC

Validation Area	Yes	No	NA	Findings/Comments
I. Technical holding times				
All technical holding times were met.	✓			
Cooler temperature criteria was met.	✓			
II. Initial calibration				
Did the laboratory perform a 5 point calibration prior to sample analysis?	✓			
Was a linear fit used for evaluation? If yes, were all percent relative standard deviations (%RSD) ≤ 20%?	✓			
Was a curve fit used for evaluation? If Yes, what was the acceptance criteria used?		✓		
Did the initial calibration meet the curve fit acceptance criteria?			✓	
Were the RT windows properly established?	✓			
IV. Continuing calibration				
What type of continuing calibration calculation was performed? ✓ %D or %R	✓			
Was a continuing calibration analyzed daily?	✓			
Were all percent differences (%D) ≤ 15%.0 or percent recoveries 85-115%?	✓			
Were all the retention times within the acceptance windows?	✓			
V. Blanks				
Was a method blank associated with every sample in this SDG?	✓			
Was a method blank analyzed for each matrix and concentration?	✓			
Was there contamination in the method blanks? If yes, please see the Blanks validation completeness worksheet.		✓		
VI. Surrogate spikes				
Were all surrogate %R within the QC limits?	✓			
If the percent recovery (%R) of one or more surrogates was outside QC limits, was a reanalysis performed to confirm %R?			✓	
If any %R was less than 10 percent, was a reanalysis performed to confirm %R?			✓	
VII. Matrix spike/Matrix spike duplicates				
Were a matrix spike (MS) and matrix spike duplicate (MSD) analyzed for each matrix in this SDG? If no, indicate which matrix does not have an associated MS/MSD. Soil / Water.	✓			
Was a MS/MSD analyzed every 20 samples of each matrix?	✓			
Were the MS/MSD percent recoveries (%R) and the relative percent differences (RPD) within the QC limits?	✓			
VIII. Laboratory control samples				
Was an LCS analyzed for this SDG?	✓			
Was an LCS analyzed per extraction batch?	✓			

LDC #: 18575D7
SDG #: K250257I

VALIDATION FINDINGS CHECKLIST

Reviewer: 9
2nd Reviewer: 9

Validation Area	Yes	No	NA	Findings/Comments
Were the LCS percent recoveries (%R) and relative percent difference (RPD) within the QC limits?	✓			
IX. Regional Quality Assurance and Quality Control				
Were performance evaluation (PE) samples performed?		✓		
Were the performance evaluation (PE) samples within the acceptance limits?			✓	
X. Target compound identification				
Were the retention times of reported detects within the RT windows?	✓			
XI. Compound quantitation/CRQLs				
Were compound quantitation and CRQLs adjusted to reflect all sample dilutions and dry weight factors applicable to level IV validation?	✓			
XII. System performance				
System performance was found to be acceptable.	✓			
XIII. Overall assessment of data				
Overall assessment of data was found to be acceptable.	✓			
XIV. Field duplicates				
Were field duplicate pairs identified in this SDG?	✓			
Were target compounds idetected in the field duplicates?	✓			
XV. Field blanks				
Were field blanks identified in this SDG?	✓			
Were target compounds detected in the field blanks?	✓			

LDC #: 13750T
SDG #: KX5025T1

VALIDATION FINDINGS WORKSHEET
Field Duplicates

Page: 1 of 1
Reviewer: a
2nd reviewer: e

METHOD: ✓ GC __ HPLC

Y N N/A Were field duplicate pairs identified in this SDG?
Y N N/A Were target compounds detected in the field duplicate pairs?

Compound	Concentration (ug/L)		%RPD Limit ≤____	Qualification Parent only / All Samples
	2	3		
4RO	14	33	81	

Compound	Concentration ( )		%RPD Limit ≤____	Qualification Parent only / All Samples

LDC #: 13575 0T
SDG #: K25025T1

VALIDATION FINDINGS WORKSHEET
Field Blanks

Page: 1 of 1
Reviewer: 9
2nd reviewer: 9

METHOD: ~~GC/MS~~ VOA (EPA SW 846 Method ~~8260B~~ 8015B) GC

Y N N/A Were field blanks identified in this SDG?
Y N N/A Were target compounds detected in the field blanks?

Sample: 1 Field Blank / Trip Blank / ~~Rinsate~~ / Other E _____ (circle one)

Compound	Concentration Units (ug/L)
GRO	13

Sample: _____ Field Blank / Trip Blank / Rinsate / Other_____ (circle one)

Compound	Concentration Units ( )

Sample: _____ Field Blank / Trip Blank / Rinsate / Other_____ (circle one)

Compound	Concentration Units ( )

LDC #: 135750T
SDG #: K50257I

VALIDATION FINDINGS WORKSHEET
Initial Calibration Calculation Verification

Page: 1 of 1
Reviewer: q
2nd Reviewer: g

METHOD: GC ✓ HPLC _____

The calibration Factor (CF), average CF, and percent relative standard deviation (%RSD) were recalculated for the compounds identified below using the following calculations:

CF = A/C
average CF = sum of the CF/number of standards
%RSD = 100 * (S/X)

A = Area of compound,
C = Concentration of compound,
S = Standard deviation of the CF
X = Mean of the CFs

#	Standard ID	Calibration Date	Compound	Reported CF (100 ostd)	Recalculated CF (1000 std)	Reported Average CF (initial)	Recalculated Average CF (initial)	Reported %RSD	Recalculated %RSD
1	10AC	3/31/05	SRO	7920	7920	8150	8150	4.5	4.5
2									
3									
4									

Comments: Refer to Initial Calibration findings worksheet for list of qualifications and associated samples when reported results do not agree within 10.0% of the recalculated results.

LDC #: 135507
SDG #: F50257 1

VALIDATION FINDINGS WORKSHEET
Continuing Calibration Results Verification

Reviewer: 9
2nd Reviewer: 2

METHOD: GC ✓ HPLC ____

The percent difference (%D) of the initial calibration average Calibration Factors (CF) and the continuing calibration CF were recalculated for the compounds identified below using the following calculation:

% Difference = 100 * (ave. CF - CF)/ave. CF
CF = A/C

Where: ave. CF = initial calibration average CF
CF = continuing calibration CF
A = Area of compound
C = Concentration of compound

#	Standard ID	Calibration Date	Compound	Average CF(Ical)/ CCV Conc.	Reported CF/Conc. CCV	Recalculated CF/Conc. CCV	Reported %D	Recalculated %D
1	0412R003	4/13/05	GRO	8150	7730	7730	5	5
2	0412R017	4/12/05	GRO	8150	7620	7620	7	7
3								
4								

Comments: Refer to Continuing Calibration findings worksheet for list of qualifications and associated samples when reported results do not agree within 10.0% of the recalculated results.

LDC #: 13ST50T
SDG #: KX0025T1

VALIDATION FINDINGS WORKSHEET
Surrogate Results Verification

Reviewer: 9
2nd reviewer: 9

METHOD: √ GC ___ HPLC

The percent recoveries (%R) of surrogates were recalculated for the compounds identified below using the following calculation:

% Recovery: SF/SS * 100

Where: SF = Surrogate Found
SS = Surrogate Spiked

Sample ID: 4

Surrogate	Column/Detector	Surrogate Spiked	Surrogate Found	Percent Recovery	Percent Recovery	Percent Difference
				Reported	Recalculated	
R DFB	OB-624	100	93.38	93	93	0

Sample ID: _____

Surrogate	Column/Detector	Surrogate Spiked	Surrogate Found	Percent Recovery	Percent Recovery	Percent Difference
				Reported	Recalculated	

Sample ID: _____

Surrogate	Column/Detector	Surrogate Spiked	Surrogate Found	Percent Recovery	Percent Recovery	Percent Difference
				Reported	Recalculated	

LDC #: 135750T
SDG #: K250257/

VALIDATION FINDINGS WORKSHEET
Matrix Spike/Matrix Spike Duplicates Results Verification

Reviewer: 9
2nd Reviewer: 9

METHOD: ✓ GC ___ HPLC

The percent recoveries (%R) and relative percent differences (RPD) of the matrix spike and matrix spike duplicate were recalculated for the compounds identified below using the following calculation:

%Recovery = 100 * (SSC - SC)/SA Where SSC = Spiked sample concentration SC = Sample concentration
SA = Spike added
RPD =(({SSCMS - SSCMSD} * 2) / (SSCMS + SSCMSD))*100 MS = Matrix spike MSD = Matrix spike duplicate

MS/MSD samples: 9/10

Compound	Spike Added (µg/L)		Sample Conc. (µg/L)	Spike Sample Concentration (µg/L)		Matrix spike Percent Recovery		Matrix Spike Duplicate Percent Recovery		MS/MSD RPD	
	MS	MSD	---	MS	MSD	Reported	Recalc.	Reported	Recalc.	Reported	Recalc.
Gasoline (8015)	1000	1000	14	962	935	95	95	92	92	3	3
Diesel (8015)											
Benzene (8021B)											
Methane (RSK-175)											
2,4-D (8151)											
Dinoseb (8151)											
Naphthalene (8310)											
Anthracene (8310)											
HMX (8330)											
2,4,6-Trinitrotoluene (8330)											

Comments: Refer to Matrix Spike/Matrix Spike Duplicates findings worksheet for list of qualifications and associated samples when reported results do not agree within 10.0% of the recalculated results.

LDC #: 135707
SDG #: K80257/

VALIDATION FINDINGS WORKSHEET
Laboratory Control Sample/Laboratory Control Sample Duplicates Results Verification

Page: 1 of 1
Reviewer: 9
2nd Reviewer: 8

_____METHOD: __✓GC __HPLC

The percent recoveries (%R) and relative percent differences (RPD) of the laboratory control sample and laboratory control sample duplicate were recalculated for the compounds identified below using the following calculation:

%Recovery = 100 * (SSC - SC)/SA

Where SSC = Spiked sample concentration; SA = Spike added; SC = Sample concentration; LCS = Laboratory Control Sample; LCSD = Laboratory Control Sample duplicate

RPD =(({SSCLCS - SSCLCSD} * 2) / (SSCLCS + SSCLCSD))*100

LCS/LCSD samples: KWG0505834-3

Compound	Spike Added (ug/L)		Sample Conc. (ug/L)	Spike Sample Concentration (ug/L)		LCS Percent Recovery		LCSD Percent Recovery		LCS/LCSD RPD	
	LCS	LCSD	---	LCS	LCSD	Reported	Recalc.	Reported	Recalc.	Reported	Recalc.
Gasoline (8015)	500	NA	-	464	-	93	93				
Diesel (8015)											
Benzene (8021B)											
Methane (RSK-175)											
2,4-D (8151)											
Dinoseb (8151)											
Naphthalene (8310)											
Anthracene (8310)											
HMX (8330)											
2,4,6-Trinitrotoluene (8330)											

Comments: Refer to Laboratory Control Sample/Laboratory Control Sample Duplicate findings worksheet for list of qualifications and associated samples when reported results do not agree within 10.0% of the recalculated results.

LDC #: 135750J
SDG #: K25025J1

VALIDATION FINDINGS WORKSHEET
Sample Calculation Verification

Page: 1 of 1
Reviewer: 9
2nd Reviewer: 2

METHOD: ✓ GC __ HPLC

Y N N/A Were all reported results recalculated and verified for all level IV samples?
Y N N/A Were all recalculated results for detected target compounds agree within 10% of the reported results?

Concentration= (A)(Fv)(Df) / (RF)(Vs or Ws)(%S/100)

A= Area or height of the compound to be measured
Fv= Final Volume of extract
Df= Dilution Factor
RF= Average response factor of the compound in the initial calibration
Vs= Initial volume of the sample
Ws= Initial weight of the sample
%S= Percent Solid

Example:

Sample ID. 4 Compound Name 9RD

Concentration = (192625)(1) / (8750)

= 23.63 ug/L

#	Sample ID	Compound	Reported Concentrations ( )	Recalculated Results Concentrations ( )	Qualifications

Comments: _____

SAMPCALew.wpd